

U.S. DEPARTMENT OF COMMERCE
 PATENT AND TRADEMARK OFFICE

**TRANSMITTAL LETTER TO THE UNITED STATES
 DESIGNATED/ELECTED OFFICE (DO/EO/US)
 CONCERNING A FILING UNDER 35 USC 371 AND 37 CFR 1.491**

213716

U.S. APPLICATION NO.
 Unassigned

09/937906

INTERNATIONAL APPLICATION NO.
 PCT/FR00/00939

INTERNATIONAL FILING DATE
 12 April 2000

PRIORITY DATE CLAIMED
 14 April 1999

TITLE OF INVENTION
 AN ERGONOMIC TEAT


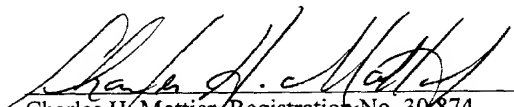
APPLICANT(S) FOR DO/EO/US
 Dussere, Louis-Marie

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 USC 371 and 37 CFR 1.491.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371 and 37 CFR 1.491.
3. ☒ This is an express request to begin national examination procedures (35 USC 371(f)).
4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
5. ☒ A copy of the International Application as filed (35 USC 371(c)(2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 USC 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 USC 371(c)(4)).
10. ☒ An English language translation of the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).
11. Nucleotide and/or Amino Acid Sequence Submission
 - a. ☐ Computer Readable Form (CRF)
 - b. Specification Sequence Listing on:
 - i. ☐ CD-ROM or CD-R (2 copies); or
 - ii. ☐ Paper Copy
 - c. ☐ Statement verifying identity of above copies

Items 12 to 19 below concern other document(s) or information included:

12. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
 - ☒ Form PTO-1449
 - ☒ Copies of Listed Documents
13. ☐ An assignment for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
14. ☒ A FIRST preliminary amendment.
 - ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☒ Application Data Sheet Under 37 CFR 1.76
18. ☒ Return Receipt Postcard
19. ☐ Other items or information:

U.S. APPLICATION NO. Unassigned 09/937906		INTERNATIONAL APPLICATION NO PCT/FR00/00939		ATTORNEY DOCKET NO. 213716	
20. <input checked="" type="checkbox"/> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,000.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$ 860.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO, but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 710.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)..... \$ 690.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1) to (4) \$ 100.00				CALCULATIONS	PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT=				\$860.00	
Surcharge of \$130.00 for furnishing the National fee or oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date				\$0.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	20 -20=	0	x \$ 18.00	\$0.00	
Independent Claims	1 - 3 =	0	x \$ 80.00	\$0.00	
<input type="checkbox"/> Multiple Dependent Claim(s) (if applicable)			+ \$270.00	\$0.00	
TOTAL OF ABOVE CALCULATIONS=				\$860.00	
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$430.00	
SUBTOTAL=				\$430.00	
Processing fee of \$130.00 for furnishing English Translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date.				\$0.00	
TOTAL NATIONAL FEE=				\$430.00	
Fee for recording the enclosed assignment. The assignment must be accompanied by an appropriate cover sheet. \$40.00 per property +				\$0.00	
TOTAL FEE ENCLOSED=				\$430.00	
				Amount to be refunded	\$
				charged:	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$430.00 to cover the above fee is enclosed.					
b. <input type="checkbox"/> Please charge Deposit Account No. 12-1216 in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.					
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 12-1216. A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO:					
Customer Number: 23460					
					
23460					
PATENT TRADEMARK OFFICE					
Date: September 28, 2001					
 Charles H. Mottier, Registration No. 30,874 One of the Attorneys for Applicant(s)					

Patent 9064660

09/937906

J005 Rec'd PCT/PTC

13 Rec'd PCT/PTO 28 SEP 2001

PATENT

Attorney Docket No. 213716

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Dussere

Art Unit: Unassigned

Application No. Unassigned

Examiner: Unassigned

Filed: September 28, 2001

For: AN ERGONOMIC TEAT

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to the examination of the above-identified patent application, please enter the following amendments and consider the following remarks.

AMENDMENTS

IN THE CLAIMS:

1. (Amended) A teat for a baby or a child, the teat comprising a plate on which the dental arches rest and defining a bite plane, said plate being terminated towards the front by a vestibular screen against which at least one of the dental arches comes into abutment in a desired position, said plate being secured to means projecting forwards out from the mouth, the teat being characterized in that it includes a nipple projecting from the rear of the plate, said nipple being in register with the back portion of the tongue when the teat is in operation in the mouth of the baby or child so as to co-operate with the tongue and the palate and stimulate movement analogous to that of suckling.

2. (Amended) A teat according to claim 1, characterized in that the projecting nipple is connected to the rear of the plate by elastic means, enabling the nipple to move away from the vestibular screen while then applying a return force to the nipple urging it towards the vestibular screen.

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3. (Amended) A teat according to claim 1, characterized in that the vestibular screen comprises:

- a top portion situated above the bite plane; and
- a bottom portion situated below the bite plane and offset rearwards relative to the top portion.

4. (Amended) A teat according to claim 3, characterized in that the offset between the top and bottom portions of the vestibular screen is about 1 mm to 3 mm.

5. (Amended) A teat according to claim 2, characterized in that a substantially vertical wall is integrally formed with the rear edge of the plate and co-operates with the vestibular screen to define an aligner for receiving the dental arches.

6. (Amended) A teat according to claim 5, characterized in that said plate is generally U-shaped, with limbs extending rearwards to the rear ends of the dental arches.

7. (Amended) A teat according to claim 6, characterized in that the plate, the vestibular screen, and the nipple are integrally molded.

8. (Amended) A teat according to claim 7, characterized in that the surface of the plate includes abrasive means.

9. (Amended) A teat according to claim 8, characterized in that the means projecting forwards out from the mouth comprise a shield for pressing against the front faces of the lips or a handle ring.

10. (Amended) A teat according to claim 1, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally therethrough to enable a baby or a child to suck a liquid contained in the bottle.

11. (New) A teat according to claim 2, characterized in that the vestibular screen comprises:

- a top portion situated above the bite plane; and
- a bottom portion situated below the bite plane and offset rearwards relative to the top portion.

12. (New) A teat according to claim 2, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

13. (New) A teat according to claim 3, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

14. (New) A teat according to claim 4, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

15. (New) A teat according to claim 5, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

16. (New) A teat according to claim 6, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

17. (New) A teat according to claim 7, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

18. (New) A teat according to claim 8, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

19. (New) A teat according to claim 9, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

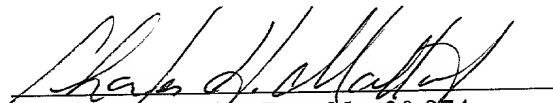
20. (New) A teat according to claim 11, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

REMARKS

The multiple claim dependencies of claims 3 and 5-10 have been removed by the amendment of claims 3 and 5-10 and the addition of claims 11-20. Accordingly, no new matter has been added by way of the claim amendments.

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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Date: September 28, 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Dussere

Art Unit: Unassigned

Application No. Unassigned

Examiner: Unassigned

Filed: September 28, 2001

For: AN ERGONOMIC TEAT

AMENDMENTS TO CLAIMS MADE VIA PRELIMINARY AMENDMENT

*(Deletions to the claims are indicated by cross-out text,
while additions are indicated by underlined text)*

(Amended) 1. ~~1/~~ A teat for a baby or a child, the teat comprising a plate (~~10~~) on which the dental arches rest and defining a bite plane, said plate being terminated towards the front by a vestibular screen (~~40, 45~~) against which at least one of the dental arches comes into abutment in a desired position, said plate being secured to means (~~50, 60, 70~~) projecting forwards out from the mouth, the teat being characterized in that it includes a nipple (~~20~~) projecting from the rear of the plate, said nipple being in register with the back portion of the tongue when the teat is in operation in the mouth of the baby or child so as to co-operate with the tongue and the palate and stimulate movement analogous to that of suckling.

(Amended) 2. ~~2/~~ A teat according to claim 1, characterized in that the projecting nipple is connected to the rear of the plate by elastic means (~~30~~), enabling the nipple to move away from the vestibular screen while then applying a return force to the nipple urging it towards the vestibular screen.

(Amended) 3. ~~3/~~ A teat according to claim 1 ~~or claim 2~~, characterized in that the vestibular screen comprises:

- a top portion (~~40~~) situated above the bite plane; and
- a bottom portion (~~45~~) situated below the bite plane and offset rearwards relative to the top portion.

(Amended) 4. ~~4/~~ A teat according to claim 3, characterized in that the offset (~~8~~) between the top and bottom portions of the vestibular screen is about 1 mm to 3 mm.

(Amended) 5. ~~5/~~ A teat according to ~~any preceding~~ claim 2, characterized in that a substantially vertical wall (80) is integrally formed with the rear edge of the plate and co-operates with the vestibular screen to define an aligner for receiving the dental arches.

(Amended) 6. ~~6/~~ A teat according to ~~any preceding~~ claim 5, characterized in that said plate (~~10~~) is generally U-shaped, with limbs extending rearwards to the rear ends of the dental arches.

(Amended) 7. ~~7/~~ A teat according to ~~any preceding~~ claim 6, characterized in that the plate, the vestibular screen, and the nipple are integrally molded.

(Amended) 8. ~~8/~~ A teat according to ~~any preceding~~ claim 7, characterized in that the surface of the plate includes abrasive means.

(Amended) 9. ~~9/~~ A teat according to ~~any preceding~~ claim 8, characterized in that the means projecting forwards out from the mouth comprise a shield (~~50~~) for pressing against the front faces of the lips or a handle ring (~~60~~).

(Amended) 10. ~~10/~~ A teat according to ~~any one of claims claim 1 to 9~~, characterized in that the means projecting forwards out from the mouth comprise an element (~~100, 110~~) for closing a baby's bottle, and the teat has a channel (~~90~~) passing longitudinally therethrough to enable a baby or a child to suck a liquid contained in the bottle.

11. (New) A teat according to claim 2, characterized in that the vestibular screen comprises:

- a top portion situated above the bite plane; and
- a bottom portion situated below the bite plane and offset rearwards relative to the top portion.

12. (New) A teat according to claim 2, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

13. (New) A teat according to claim 3, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

14. (New) A teat according to claim 4, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

15. (New) A teat according to claim 5, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

16. (New) A teat according to claim 6, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

17. (New) A teat according to claim 7, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

18. (New) A teat according to claim 8, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

19. (New) A teat according to claim 9, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

20. (New) A teat according to claim 11, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

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09/937906

~~J005 Rec'd PCT/PTO 01 OCT 2001~~

PATENT

Attorney Docket No. 213716

13 Rec'd PCT/PTO 28 SEP 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Dussere

Art Unit: Unassigned

Application No. Unassigned

Examiner: Unassigned

Filed: September 28, 2001

For: AN ERGONOMIC TEAT

PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT

1. A teat for a baby or a child, the teat comprising a plate on which the dental arches rest and defining a bite plane, said plate being terminated towards the front by a vestibular screen against which at least one of the dental arches comes into abutment in a desired position, said plate being secured to means projecting forwards out from the mouth, the teat being characterized in that it includes a nipple projecting from the rear of the plate, said nipple being in register with the back portion of the tongue when the teat is in operation in the mouth of the baby or child so as to co-operate with the tongue and the palate and stimulate movement analogous to that of suckling.

2. A teat according to claim 1, characterized in that the projecting nipple is connected to the rear of the plate by elastic means, enabling the nipple to move away from the vestibular screen while then applying a return force to the nipple urging it towards the vestibular screen.

3. A teat according to claim 1, characterized in that the vestibular screen comprises:

- a top portion situated above the bite plane; and
- a bottom portion situated below the bite plane and offset rearwards relative to the top portion.

4. A teat according to claim 3, characterized in that the offset between the top and bottom portions of the vestibular screen is about 1 mm to 3 mm.

5. A teat according to claim 2, characterized in that a substantially vertical wall is integrally formed with the rear edge of the plate and co-operates with the vestibular screen to define an aligner for receiving the dental arches.

6. A teat according to claim 5, characterized in that said plate is generally U-shaped, with limbs extending rearwards to the rear ends of the dental arches.

7. A teat according to claim 6, characterized in that the plate, the vestibular screen, and the nipple are integrally molded.

8. A teat according to claim 7, characterized in that the surface of the plate includes abrasive means.

9. A teat according to claim 8, characterized in that the means projecting forwards out from the mouth comprise a shield for pressing against the front faces of the lips or a handle ring.

10. A teat according to claim 1, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

11. A teat according to claim 2, characterized in that the vestibular screen comprises:

- a top portion situated above the bite plane; and
- a bottom portion situated below the bite plane and offset rearwards relative to the top portion.

12. A teat according to claim 2, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

13. A teat according to claim 3, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

14. A teat according to claim 4, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

15. A teat according to claim 5, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

16. A teat according to claim 6, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

17. A teat according to claim 7, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

18. A teat according to claim 8, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

19. A teat according to claim 9, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

20. A teat according to claim 11, characterized in that the means projecting forwards out from the mouth comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally there through to enable a baby or a child to suck a liquid contained in the bottle.

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AN ERGONOMIC TEAT

The invention relates in general to teats for babies and children. More precisely, the invention can be implemented:

- 5 - in a teat for sucking (or pacifier) of the type given to babies or to young children to calm them; or
- in a teat for a baby's bottle.

Pacifiers have been known for a long time that are made out of a material such as rubber, comprising a
10 central nipple for co-operating with the tongue of a child or a baby. Such pacifiers are generally provided with a shield for bearing against the outside surface of the lips, and with a ring handle.

The main function of pacifiers is to distract or
15 pacify the child (hence the word "pacifier"). Improved models of pacifiers also exist enabling an auxiliary function to be performed, such as administering an active ingredient that the child swallows while sucking the nipple of the pacifier.

Although such pacifiers can constitute a relatively
20 effective solution to the immediate problem of a restless child, they can nevertheless have extremely harmful effects on the evolving shape of the child's mouth: a well-known problem in particular lies in the creation of
25 a gap between the upper and lower incisors, since the central nipple constitutes an obstacle to development of the child's incisors.

Pacifiers are also known having a special configuration for limiting the damage that can be caused
30 in the mouths of children by excessive use of a pacifier. Examples of such pacifiers are to be found in the following documents: WO 96/20687 (Alanen and Varrella) and FR 2 705 885 (Pick).

The special means of those pacifiers consist in
35 elements for statically distributing the forces due to suction. It is possible that those pacifiers are less harmful to the mouth of a child than are conventional

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pacifiers having a central nipple for engaging between the middle portions of the lower and upper dental arches; nevertheless, those pacifiers are no more than an imperfect response to the causes of malformations of the mouth.

One of the major causes of malformations of the mouthparts lies in deficient general operation of the mouth. The most advanced work in neuro-occlusal rehabilitation (NOR) has shown the essential role of stimulating the functioning of the mouth in achieving balanced development of the mouthparts (see in particular the work by Prof. Planas "La réhabilitation neuro-occlusale" [Neuro-occlusal rehabilitation]).

From empirical observations made over a long period of time, it has thus been possible to validate the hypothesis that it is beneficial for harmonious development of dentition, to cause the stomatognathic system to function as much as possible, and to do so from birth.

Unfortunately, modern feeding habits do not encourage stimulation of the stomatognathic system: the pap and soft food given to babies, and the generally soft nature of modern food, stimulate this system only partially and insufficiently.

By way of example, observable consequences include the facial skull not developing sufficiently so that the bottom jaw remains set back too far from the top jaw, or teeth that are insufficiently eroded due to no absence of lateral movements of the jaws and that therefore tend to lead to the jaws locking together due to the teeth of the top jaw jamming mutually with the teeth of the bottom jaw.

Oral appliances such as aligners are known for the purpose of correcting the above-mentioned malformations; A problem associated with such appliances is that they are generally poorly accepted by young children, even

though it is recognized that the earlier intervention is carried on the mouthparts, the more it is effective.

To reduce this awkward constraint, "hybrid" devices are known that are presented in the form of a pacifier that reproduces certain characteristics of orthodontic aligners and that are provided with a ring for the child to hold. Examples of such devices are to be found in documents FR 2 595 046 (Giordanno) and EP 0 400 217 (Bergersen).

Nevertheless, those devices are not well accepted by young children since they act solely as a constraint and do not provide the satisfaction associated with sucking, which recalls feeding at the breast.

In any event those devices are no more than an imperfect solution to the above-mentioned problems of malformation since:

- firstly the devices are poorly accepted by young children so they can be used only once the child has reached an age at which development has already advanced; the devices are therefore curative rather than preventive, and they do not make it possible to avoid the appearance of malformations;

- secondly, such devices are naturally "static", since their function is limited to holding certain organs such as the dental arches in desired positions. Thus, that type of device does not stimulate functioning of the stomatognathic system even though it is mentioned above that such stimulation is an important factor in good development of dentition.

The way such devices have evolved is also described in document US 5 814 074, which discloses a pacifier comprising not only elements for positioning the dental arches, but also an element projecting from the rear of the pacifier in order to co-operate with the tip of the child's tongue.

However that evolution does not provide an adequate solution for stimulating the functioning of the

stomatognathic system, insofar as the pacifier of
 US 5 814 074 does not give rise to functioning of the
 stomatognathic system in a manner analogous to that
 achieved by suckling, since it does not interfere with
 5 the back of the tongue or with the palate.

Finally, attempts have been made to stimulate
 functioning of a child's tongue: document EP 0 199 005
 (Rodam SA) teaches a pacifier in which the teat is fixed
 to elastic means so as to reproduce to some extent the
 10 way in which the mouth of a child is stimulated by the
 breast and to encourage horizontal movement of the lower
 dental arch. However, although such a device can be
 advantageous in terms of stimulating movements of the
 mouth, it does not provide any proper positioning of the
 15 dental arches.

It can thus be seen that there is a need for teats
 that can be used by babies and young children, that act
 simultaneously:

- to stimulate functioning of the various portions
 20 of the stomatognathic system by giving rise to movements
 analogous to those performed during chewing or suckling;
 and

- to properly position said portions (in particular
 the two dental arches) relative to one another.

25 An object of the invention is to satisfy that need.

To achieve this object the invention proposes a teat
 for a baby or a child, the teat comprising a plate on
 which the dental arches rest and defining a bite plane,
 said plate being terminated towards the front by a
 30 vestibular screen against which at least one of the
 dental arches comes into abutment in a desired position,
 said plate being secured to means projecting forwards out
 from the mouth, the teat being characterized in that it
 includes a nipple projecting from the rear of the plate,
 35 said nipple being for co-operating with the tongue to
 stimulate movement analogous to that of suckling.

Preferred but non-limiting aspects of the teat of the invention are as follows:

- the projecting nipple is connected to the rear of the plate by elastic means;
- 5 - the vestibular screen comprises:
 - a top portion situated above the bite plane;
 and
 - a bottom portion situated below the bite plane and offset rearwards relative to the top portion;
- 10 - the offset between the top and bottom portions of the vestibular screen is about 1 millimeters (mm) to 3 mm;
- 15 - a substantially vertical wall is integrally formed with the rear edge of the plate and co-operates with the vestibular screen to define an aligner for receiving the dental arches;
- 20 - said plate is generally U-shaped, with limbs extending rearwards to the rear ends of the dental arches;
- 20 - the plate, the vestibular screen, and the nipple are integrally molded;
- the nipple faces the rear portion of the tongue when the teat is in position in the mouth of the baby or the child;
- 25 - the surface of the plate includes abrasive means;
- the means projecting forwards out from the mouth comprise a shield for pressing against the front faces of the lips or a handle ring; and
- the means projecting forwards out from the mouth
- 30 comprise an element for closing a baby's bottle, and the teat has a channel passing longitudinally therethrough to enable a baby or a child to suck a liquid contained in the bottle.

Other aspects, objects, and advantages of the present invention will appear more clearly on reading the following description of a preferred embodiment given with reference to the accompanying drawings, in which:

- Figure 1 is a perspective view from behind of a pacifier of the invention;

5 - Figure 2 is an elevation view from behind of the same pacifier, defining longitudinal section planes III-III and IV-IV;

- Figure 3 is a view of the pacifier of Figures 1 and 2, shown in section plane III-III;

- Figure 4 is a view of the same pacifier shown in section plane IV-IV;

10 - Figure 5 is a theoretical diagram showing how a pacifier of the invention takes its place in the mouth of a child;

- Figure 6 is a perspective view from behind of a variant embodiment of a pacifier of the invention;

15 - Figure 7 is a perspective view of a teat of the pacifier for a baby's bottle;

- Figures 8a and 8b show two possible shapes for the nipple of a teat of the invention;

20 - Figures 9a and 9b are respectively a plan view and a longitudinal section view of a pacifier of the invention for a child of less than three years of age; and

25 - Figures 10a and 10b are two views corresponding to the views of Figures 9a and 9b, showing a pacifier of the invention for a child of more than three years of age.

Figure 1 shows a pacifier of the invention. This pacifier comprises:

30 - a horizontal plate 10 of generally plane U-shape which is intended to have its concave end pointing towards the front of the mouth, with the ends of the limbs of the U-shape of the plate being directed rearwards. The two main faces of the plate (top face and bottom face) can be made to be slightly abrasive (by using a mold of appropriate surface state or by

35 depositing a suitable surface coating, for example). The plate 10 is intended to receive the two dental arches of

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- a nipple 20 whose center is situated substantially in the same plane as the plate 10, behind the plate;

10

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plane of the plate, from the front edge region thereof, and extending below said plate.

Figure 3 is a middle longitudinal section view of the pacifier of Figures 1 and 2 and shows in particular the relative positions of the two vestibular screens 40 and 45: in this figure it can be seen that the two screens are situated vertically on opposite sides of the plate 10 but are not in line with each other.

On the contrary, the top screen 40 is advanced a little relative to the bottom screen 45 so as to define an offset δ between the rear faces of the two screens that is about 2 mm. This offset can also be seen in Figure 4 and is for the purpose of encouraging proper relative positioning of the top and bottom dental arches, the top arch needing to be slightly further forward than the bottom arch so as to enable the teeth of the top arch to overlap the teeth of the bottom arch.

This offset occurs only over the front portions of the vestibular screens 40 and 45, with these screens being extended towards the rear ends of the limbs of the U-shaped plate so that their respective inside faces make contact with the dental arches which extend in register with each other in the vertical direction, such that the offsets established between the top and bottom dental arches relates solely to the longitudinal direction and corresponds to the middle axis of the mouth.

In an embodiment not shown in the figure and intended more particularly for babies and very young children, the vestibular screen 45 extends in register with the screen 40 in a direction perpendicular to the plane of the plate 10.

With children whose teeth have not yet erupted, there is no need to provide an offset δ between the screens 40 and 45; furthermore, eliminating the offset enables the pacifier to be symmetrical about the bite plane of the plate 10, thus avoiding any risk of the

pacifier being placed upside-down in the mouth of a young child.

As mentioned above, the plate 10 is intended to receive the top and bottom dental arches of the child on its two faces respectively, and thus defines a bite plane. It must also be as fine as possible so that its thickness does not interfere with closing the mouth. In practice, the thickness of the plate is substantially equivalent to the thickness of the plates of orthodontic aligners, i.e. it is of millimeter order;

By making the faces of the plate 10 abrasive, it is possible to erode the milk teeth of a child if used with a child whose teeth have already appeared. Such erosion encourages lateral movements of the jaws and thus encourages the stomatognathic system to function in full.

Figure 5 shows how the pacifier of the invention is positioned in the mouth of a child. In this figure it can be seen that the limbs of the plate 10 extend rearwards as far as the location of the molars, whose positions are identified by dashed lines. This makes it possible to ensure that the faces of the plate co-operate with the entire length of each dental arch.

It can also be seen that the top arch A1 bears against the top of the plate while coming into forward abutment against the rear face of the top vestibular screen 40, while the bottom arch A2 comes into abutment against the bottom vestibular screen 45 which is situated slightly behind the top vestibular screen: the offset δ between the arches A1 and A2 ensures they are properly positioned. As mentioned above, it is also possible with a pacifier for a baby or a very young child to have an offset δ of zero.

The lips of the child come to bear against the respective front faces of the vestibular screens 40 and 45. This contact acts on the lips and reinforces their tone, thereby contributing to overall stimulation of the stomatognathic system.

The connection portion 30 between the plate and the nipple is elastic so as to enable the nipple to move rearwards when pulled by the tongue of the child, while nevertheless continuously urging said nipple towards the plate (forwards).

This elasticity of the connection portion 30 can be obtained by making said portion out of a plastics material that is more elastic than the material used for the plate 10 and the nipple 20, or by designing the shape of this portion in such a manner as to have a narrow section, or indeed by implementing any other known means such as a connection portion 30 capable of moving longitudinally relative to the plate and associated with a spring, as taught by document EP 0 199 005 (Rodam SA).

The elasticity of the connection portion 30 serves to reinforce the child's motivation to interact with the nipple, which then has dynamic behavior similar to that of the breast. The distance between the nipple and the rear of the plate is adapted so that the nipple comes into register with the back of the tongue, thus enabling proper co-operation between the child's tongue and the nipple.

It can thus be seen that the pacifier of the invention performs the following functions simultaneously:

- firstly it provides proper relative positioning of the dental arches in the mouth of a baby or a child, by means of the configuration of the plate 10 and of the vestibular screens 40 and 45.

- secondly it causes the stomatognathic system to function; unlike conventional oral appliances, this device is not intended to operate statistically. On the contrary, the device of the invention strongly stimulates dynamic functioning of the stomatognathic system; not only must the child move the bottom jaw forwards to position the lower arch A2 beneath the plate 10 and against the lower vestibular screen 45, but also the

nipple connected to the pacifier by the elastic connection 30 strongly stimulates the tongue of the child. This second stimulation provides a kind of "motor" causing the child's stomatognathic system to function, with the child finding satisfaction in the process of interaction with the nipple via the tongue and the palate; and

- finally, pacifiers of the invention act like conventional pacifiers to soothe the child.

In an embodiment not shown in the figures, it is also possible to provide projecting points on the front faces of the vestibular screens 40 and 45 to further reinforce the tone of the lips which press against these front faces.

Figure 6 shows a variant embodiment of the pacifier of the invention, in which the plate 10 is associated not only with a vestibular screen 40 on its front edge, but also with another screen 80, substantially parallel to the screen 40, and extending from the rear edge of the plate. In this variant, an aligner has thus been constituted on the top face of the plate 10 for the purpose of positioning the upper dental arch of the child.

The screen 80 which projects from the rear edge of the plate can project upwards only, as shown in Figure 6 or it can project from both sides of the plane of the plate so as also to constitute an aligner on the bottom face of the plate in co-operation with the bottom vestibular screen 45.

The pacifiers described can be manufactured using any conventional means: the pacifier can be made by molding a plastics or rubber material to constitute a subassembly comprising the plate 10 and the various screens projecting from its edges, the connection portion 30, and the nipple 20, while the connection portion 70, the shield 50, and the ring 60 can be assembled to the remainder of the pacifier in a subsequent step. It is

also possible to envisage molding using a plurality of materials, in which case the elasticity of the material constituting the connection portion 30 can be greater than that of the other molded portions. It is also possible to make the entire pacifier as a single one-piece molding of a single material, with the elasticity of the portion 30 then being obtained by giving said portion a suitable shape (e.g. a narrowing of its section).

As mentioned above, the invention can also be implemented in a teat for a baby's bottle, as shown in Figure 7. Under such circumstances, the shield 50 and the handle ring 60 are replaced by a ring 100 for fixing onto a bottle and by a hollow dome 110 integrally molded with the portion 70 connecting with the plate.

The other elements of the teat (plate, screens, nipple) are similar to the elements implemented in the pacifier, except that a longitudinal channel 90 passes right through the plate 10, the connection portion 30, and the nipple 20 so as to connect an orifice 91 opening out into the internal cavity of the dome 110 in register with the bottle to a second orifice 92 that opens out through the surface of the nipple.

In this embodiment as a teat for a baby's bottle, the dental arches of the baby or the child are thus positioned during feeding. All of the variants mentioned above concerning a pacifier are applicable to a teat in accordance with the invention.

Figures 8a and 8b show two embodiments of the nipple 20. The nipple in Figure 8a is of conventional spherical shape. The nipple of Figure 8b is flattened on top so as to facilitate co-operation between the top of the nipple and the child's palate. The nipple can have any ergonomic shape, for example it can flare on the sides of its top portion so as to co-operate effectively with the side portions of the child's palate.

As mentioned above, the invention is for babies and young children. It is possible to provide various sizes of teat as a function of the size of the child's mouth.

By way of indication, a teat for use with a newborn baby should have a plate that is compatible with dental arches having a maximum width (as measured at the rear ends of the dental arch) of about 3 centimeters; under such circumstances, the spacing between the two rear ends of the vestibular screen 40, which are substantially in register with each other, should be slightly greater than that, since the two ends of the screen are on the outside of the rear ends of the dental arch.

Still for a newborn baby, the length of the dental arch (distance measured in the longitudinal direction of the mouth) is about two centimeters; the plate 10 can then be comparable in length or slightly longer.

As shown in Figures 9a and 9b, which show a pacifier for a baby or a very young child, the plate 10 can also extend only in the front portion of the child's mouth, since the teeth situated towards the rear ends of the dental arches do not generally erupt before the age of three. Under such circumstances, the plate 10 extends over about 1.5 centimeters on either side of the middle axis of the teat (whereas the screen 40 can extend further back).

In general, the width of the plate 10 can be about 5 millimeters in the middle region of the plate (width ℓ_1), and if the plate extends towards the rear ends of the dental arches (in particular for children aged three or more, which corresponds to the device shown in Figures 10a and 10b), it can be about 8 millimeters towards the ends of the plate (width ℓ_2), so that the width of the plate corresponds to the width of the teeth or the dental arches.

Because of the offset δ between the screens 40 and 45, the width of the plate 10 which is about

5 millimeters in its middle region, is reduced on the bottom face of the plate, by a value corresponding to δ .

As mentioned above, pacifiers or teats of the invention can be made as a one-piece molding of a plastics material (such as rubber, silicone, ...). The thickness of the plate 10 which is of millimeter order is selected to be strong enough to withstand the action of the teeth and the dental arches and in particular to avoid being punctured in use, however the thickness must be as small as possible in order to avoid development of a gap between the dental arches.

As mentioned above, the nipple 20 must extend over the back of the child's tongue, so its length L can be about 2.5 centimeters, thereby extending rearwards in such a manner that its rear edge is about 3 centimeters behind the screen 40.

The nipple typically extends towards the rear of the teat so as to extend beyond the rear ends of the limbs of the U-shaped plate 10, such that with a teat intended for a child aged more than three (Figures 10a and 10b) said limbs can extend about 3 centimeters behind the vestibular screen 40, with the nipple projecting about 5 millimeters beyond the ends of the limbs.

The height h_1 of the upper vestibular screen 40 can be about 8 millimeters, and that of the lower vestibular screen 45 can be about 5 millimeters for a child aged less than three (height h_2 in Figure 9b) and about 8 millimeters for an older child (height h_2' in Figure 10b).

Figures 9a to 10b show that the pacifier comprises not only vestibular screens 40 and 45 which extend from the front of the plate 10, but also a screen 85 which extends from the rear edge of the plate 10 at an oblique orientation both downwards and rearwards, so as to form an angle of about 45° with the plane of the plate 10.

The height h of such a screen 45 (i.e. its maximum extent in a longitudinal section plane of the teat) can be about 6 millimeters.

5 The nipple can be substantially round in shape when seen from above, so as to fill the child's mouth in the same manner as a breast during feeding. In Figures 9a and 10a, the nipple is thus generally in the form of a circle having a diameter of about 2.5 centimeters.

10 This nipple need not extend in line with the plane of the plate 10, but can extend upwards at an angle of about 30° relative to said plane so that the nipple at rest extends rearwards over a length of about 2.5 centimeters and upwards over a height of about 1.5 centimeters.

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CLAIMS

- 1/ A teat for a baby or a child, the teat comprising a plate (10) on which the dental arches rest and defining a bite plane, said plate being terminated towards the front by a vestibular screen (40, 45) against which at least one of the dental arches comes into abutment in a desired position, said plate being secured to means (50, 60, 70) projecting forwards out from the mouth, the teat being characterized in that it includes a nipple (20) projecting from the rear of the plate, said nipple being in register with the back portion of the tongue when the teat is in operation in the mouth of the baby or child so as to co-operate with the tongue and the palate and stimulate movement analogous to that of suckling.
- 2/ A teat according to claim 1, characterized in that the projecting nipple is connected to the rear of the plate by elastic means (30), enabling the nipple to move away from the vestibular screen while then applying a return force to the nipple urging it towards the vestibular screen.
- 3/ A teat according to claim 1 or claim 2, characterized in that the vestibular screen comprises:
- a top portion (40) situated above the bite plane; and
 - a bottom portion (45) situated below the bite plane and offset rearwards relative to the top portion.
- 4/ A teat according to claim 3, characterized in that the offset (δ) between the top and bottom portions of the vestibular screen is about 1 mm to 3 mm.
- 5/ A teat according to any preceding claim, characterized in that a substantially vertical wall (80) is integrally formed with the rear edge of the plate and co-operates

with the vestibular screen to define an aligner for receiving the dental arches.

5 6/ A teat according to any preceding claim, characterized in that said plate (10) is generally U-shaped, with limbs extending rearwards to the rear ends of the dental arches.

10 7/ A teat according to any preceding claim, characterized in that the plate, the vestibular screen, and the nipple are integrally molded.

15 8/ A teat according to any preceding claim, characterized in that the surface of the plate includes abrasive means.

20 9/ A teat according to any preceding claim, characterized in that the means projecting forwards out from the mouth comprise a shield (50) for pressing against the front faces of the lips or a handle ring (60).

25 10/ A teat according to any one of claims 1 to 9, characterized in that the means projecting forwards out from the mouth comprise an element (100, 110) for closing a baby's bottle, and the teat has a channel (90) passing longitudinally therethrough to enable a baby or a child to suck a liquid contained in the bottle.

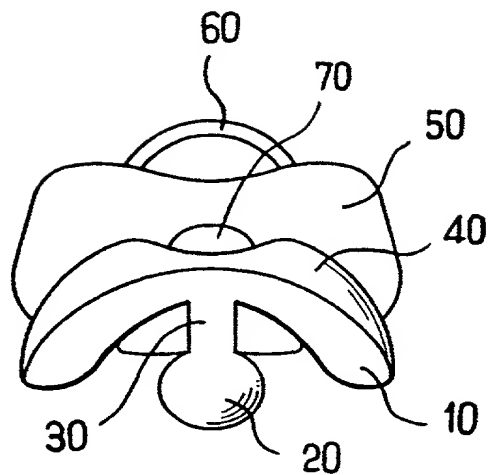


FIG. 1

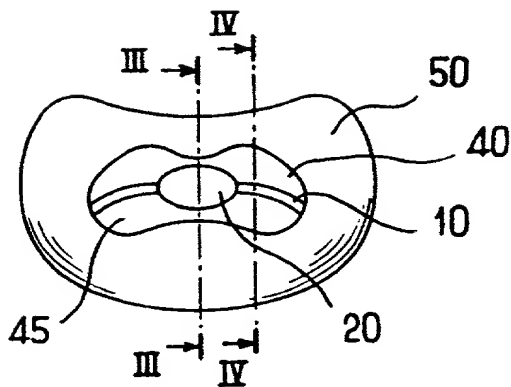


FIG. 2

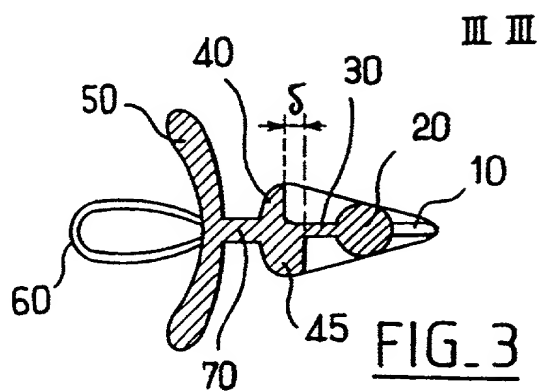


FIG. 3

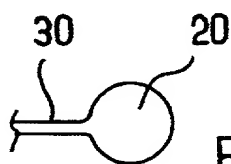


FIG. 8a



FIG. 8b

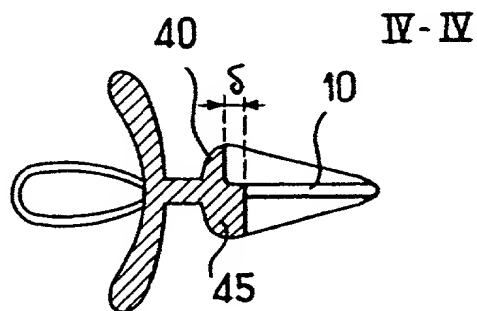


FIG. 4

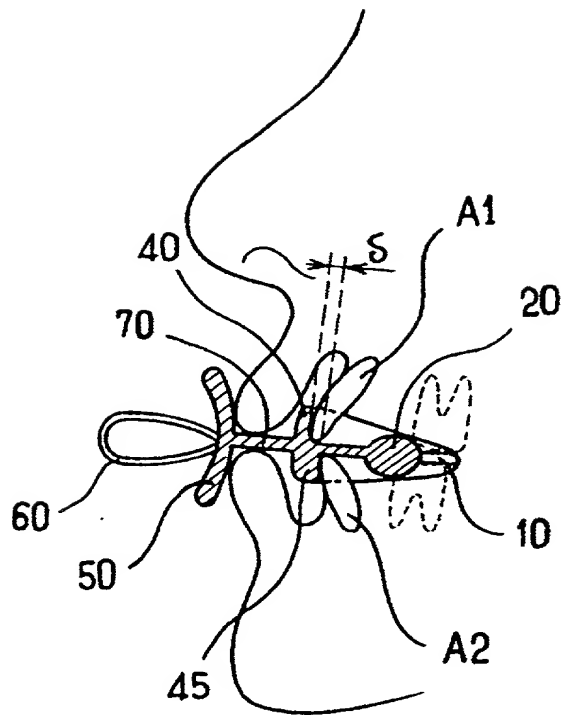


FIG. 5

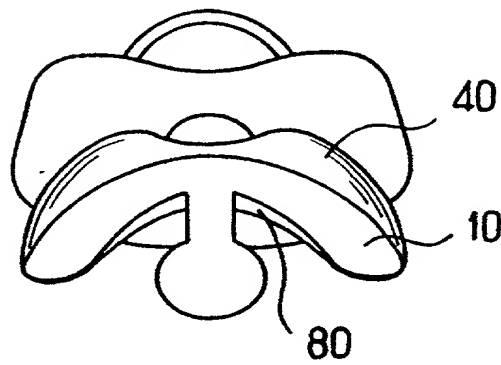


FIG. 6

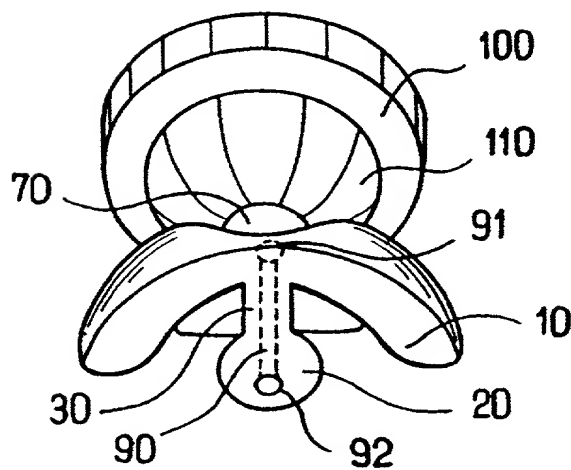


FIG. 7

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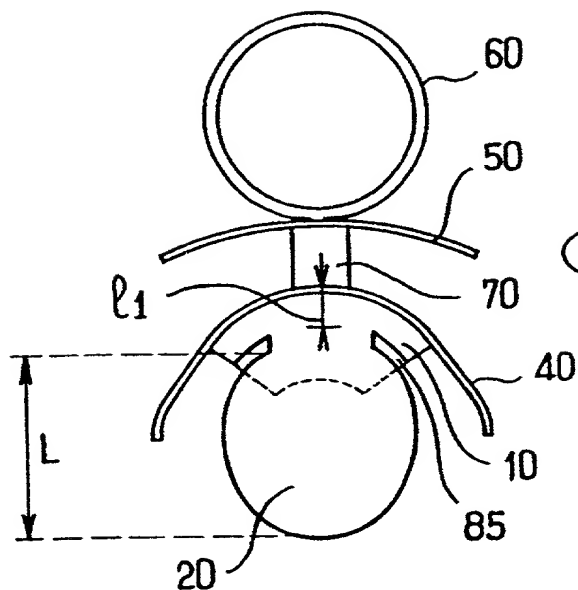


FIG. 9a

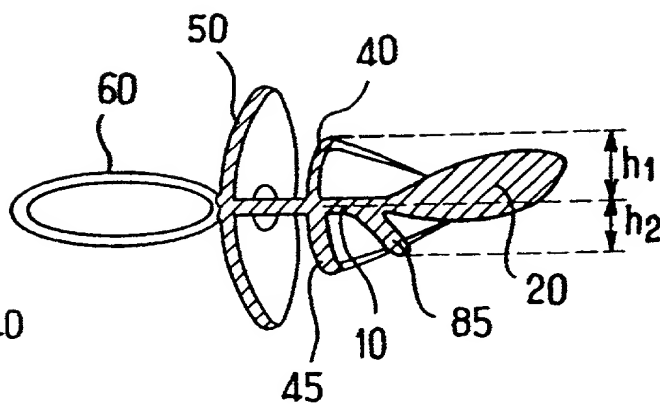


FIG. 9b

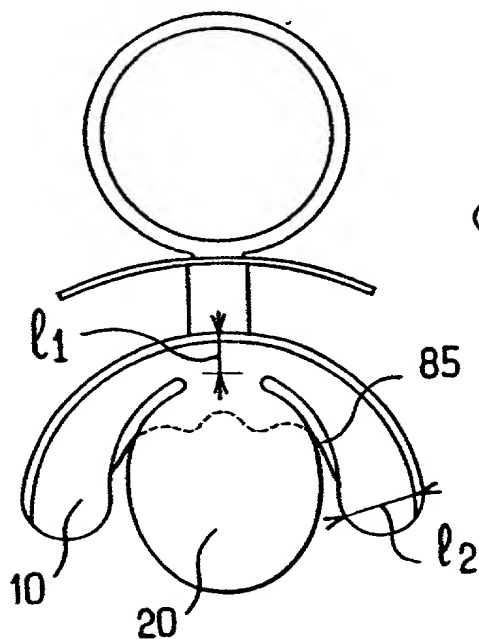


FIG. 10a

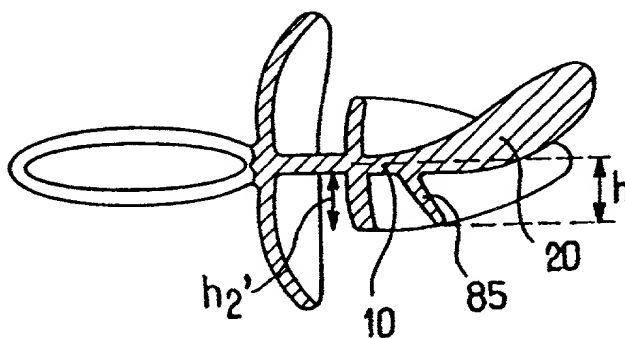


FIG. 10b

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

This declaration is of the following type:

- ☐ original ☐ design ☐ supplemental
☒ national stage of PCT
☐ divisional ☐ continuation ☐ continuation-in-part

My residence, post office address, and citizenship are as stated below next to my name. I believe I am the original, first, and sole inventor (*if only one name is listed below*) or an original, first, and joint inventor (*if plural names are listed below*) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

AN ERGONOMIC TEAT

the specification of which:

- ☐ is attached hereto.
☒ was filed on September 28, 2001 as Application No. 09/937,906 and was amended on (*if applicable*).
☐ was filed by Express Mail No. *as Application No. not known yet*, and was amended on (*if applicable*).
☒ was filed on 12 April 2000 as PCT International Application No. PCT/FR00/00939 and was amended on (*if any*).

I state that I have reviewed and understand the contents of the specification identified above, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose information that is material to the patentability of the application identified above in accordance with 37 CFR 1.56.

I claim foreign priority benefits under 35 USC 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate or 365(a) of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent, utility model, design registration, or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter and having a filing date before that of the application(s) from which the benefit of priority is claimed.

PRIOR FOREIGN PATENT, UTILITY MODEL, AND DESIGN REGISTRATION APPLICATIONS						
COUNTRY	PRIOR FOREIGN APPLICATION NO.	DATE OF FILING (day,month,year)	PRIORITY CLAIMED			
France ✓	99 04672 ✓	14 April 1999 ✓	X	YES		NO
				YES		NO
				YES		NO

I claim the benefit pursuant to 35 USC 119(e) of the following United States provisional patent application(s):

PRIOR U.S. PROVISIONAL PATENT APPLICATIONS, BENEFIT CLAIMED UNDER 35 USC 119(e)	
APPLICATION NO.	DATE OF FILING (day,month,year)

I claim the benefit pursuant to 35 USC 120 of any United States patent application(s) or PCT international application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this patent application is not disclosed in the prior patent application(s) in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose material information as defined in 37 CFR 1.56 effective between the filing date of the prior patent application(s) and the national or PCT international filing date of this patent application.

PRIOR U.S. PATENT APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S., BENEFIT CLAIMED UNDER 35 USC 120					
U.S. PATENT APPLICATIONS			Status (check one)		
U.S. APPLICATION NO.	U.S. FILING DATE		PATENTED	PENDING	ABANDONED
1.					
2.					
3.					
PCT APPLICATIONS DESIGNATING THE U.S.			Status (check one)		
PCT APPLICATION NO.	PCT FILING DATE (day,month,year)	U.S. APPLICATION NOS. ASSIGNED (if any)	PATENTED	PENDING	ABANDONED
4. PCT/FR00/00939 ✓	12 April 2000 ✓			X	
5.					
6.					

DETAILS OF FOREIGN APPLICATIONS FROM WHICH PRIORITY CLAIMED UNDER 35 USC 119 FOR ABOVE LISTED U.S./PCT APPLICATIONS				
ABOVE APPLICATION NO.	COUNTRY	APPLICATION NO.	DATE OF FILING (day,month,year)	DATE OF ISSUE (day,month,year)
1.				
2.				
3.				
4. PCT/FR00/00939 ✓	France	99 04672 ✓	14 April 1999 ✓	
5.				
6.				

In re Appln. of Dussere
Attorney Docket No. 213716

As a named inventor, I hereby appoint Leydig, Voit & Mayer, Ltd. to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: Customer Number 23460.



23460

PATENT TRADEMARK OFFICE

I further direct that correspondence concerning this application be directed to Leydig, Voit & Mayer, Ltd.: Customer Number 23460.



23460

PATENT TRADEMARK OFFICE

I declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: Louis-Marie Dussere

Inventor's signature _____

Date December 10, 2001

Country of Citizenship: France ☒

Residence: Paris, France ~~FRX~~
(city/state or country)

Post Office Address: 328 Rue de Vaugirard, 75015 Paris, France
(complete mailing address)

Applicant or Patentee: Louis-Marie DUSSERE Attorney's
Serial or Patent No.: 09/937,906 Docket No.: 213716
Filed or Issued: September 28, 2001
For: AN ERGONOMIC TEST

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9 (f) and 1.27 (b)) — INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9 (c) for purposes of paying reduced fees under section 41 (a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled AN ERGONOMIC TEST described in

[] the specification filed herewith
[☒] application serial no. 09/937,906, filed September 28, 2001
[] patent no. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9 (c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9 (d) or a nonprofit organization under 37 CFR 1.9 (e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

[☒] no such person, concern, or organization
[] persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME Louis-Marie DUSSERE
ADDRESS 328 rue de Vaugirard, 75015 PARIS, FRANCE
[☒] INDIVIDUAL [] SMALL BUSINESS CONCERN [] NONPROFIT ORGANIZATION


FULL NAME _____
ADDRESS _____
[] INDIVIDUAL [] SMALL BUSINESS CONCERN [] NONPROFIT ORGANIZATION

FULL NAME _____
ADDRESS _____
[] INDIVIDUAL [] SMALL BUSINESS CONCERN [] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28 (b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Louis-Marie DUSSERE

NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
		
Signature of Inventor	Signature of Inventor	Signature of Inventor
November 21, 2001		
Date	Date	Date